

549,382

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
21 October 2004 (21.10.2004)

PCT

(10) International Publication Number
WO 2004/089862 A2

- (51) International Patent Classification⁷: **C07C 49/00**
- (21) International Application Number:
PCT/US2004/009973
- (22) International Filing Date: 1 April 2004 (01.04.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/459,731 2 April 2003 (02.04.2003) US
- (71) Applicant (for all designated States except US): **DOW GLOBAL TECHNOLOGIES INC. [US/US]**; Washington Street, 1790 Building, Midland, MI 48674 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **GODSCHALX, James, P. [US/US]**; 2205 Plymouth Street, Midland, MI 48642 (US). **HEFNER, Robert, E., Jr. [US/US]**; 109 Wedgewood, Lake Jackson, TX 77566 (US). **NIU, Jason, Q. [US/US]**; 305 West Chapel Lane, Midland, MI 48640 (US). **SILVIS, H., Craig [US/US]**; 1908 Candlestick Lane, Midland, MI 48642 (US).
- (74) Agent: **DELINE, Douglas, N.**; The Dow Chemical Company, Intellectual Property Section, P.O. Box 1967, Midland, MI 48674-1967 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2004/089862 A2

(54) Title: MULTIFUNCTIONAL UNSYMMETRICALLY SUBSTITUTED MONOMERS AND POLYARYLENE COMPOSITIONS THEREFROM

(57) Abstract: A monomer suitable for use in forming low dielectric constant films in semiconductor devices comprising i) two dienophile groups (A-functional groups) attached to a single aromatic ring and ii) a second ring structure comprising two conjugated carbon-to-carbon double bonds and a leaving group L (B-functional group), characterized in that said single aromatic ring is directly covalently attached to one of the double bonded carbons of the B functional group or to a fused aromatic ring containing two such double bonded carbons of the B-functional group, and one A-functional group of one monomer is capable of reaction under cycloaddition reaction conditions with the B-functional group of a second monomer to thereby form a polymer.